

REMARKS

Claims 1-16 are pending in this application with claims 1, 6, 8 and 14 being amended by this Response.

Rejection of Claims 1-3 under 35 USC § 103(a)

Claims 1-3 are rejected under 35 U.S.C. 103(a), as being unpatentable over Lee (U.S. Patent No. 6,335,762 B1) in view of Citta (U.S. Patent No. 5,283,653).

Claim 1 has been amended to recite “marking the selected channel as a digital signal if the intermediate frequency of the selected channel is similar to a nominal frequency for a digital signal” and “marking the selected channel as an analog signal if the intermediate frequency of the selected channel is similar to a nominal frequency for an analog signal”. Support for these amendments can be found throughout the specification and specifically on page 8, line 32 to page 9, line 5.

The present invention as claimed in claim 1 teaches a method for processing a plurality of channels. A channel is selected and a signal associated with the selected channel is received. The selected channel is then marked to be either digital or analog depending on whether the intermediate frequency of the selected channel is similar to a nominal frequency for a digital or an analog signal. The information associated with the selected channel is then stored. This process is repeated until each of the plurality of channels has been selected.

In current television receivers, autoprogramming algorithms and systems are used for automatically detecting active television signals. Current systems are limited to processing analog television channels. As digital channels become more widely used, the need exists for television receivers to be able to detect both analog and digital channels. Currently, separate systems are required for such. The present claimed invention provides an apparatus and method which incorporates detection of digital television channels into the autoprogramming algorithms for analog channels.

Furthermore, by marking each channel as analog or digital, the present claimed invention is able to reduce the time required for tuning a selected channel as the receiver does not have to detect whether the channel is analog or digital upon selection of the channel.

Lee teaches a circuit and method for determining a received signal for a receiver such as a simulcast receiver or an HDTV receiver. The circuit includes two detectors for detecting reference signals included in a received signal and outputting detection signals. The circuit also includes a generator for generating a determination signal which indicates that the received signal is either an analog or an HDTV broadcasting signal. However, Lee neither discloses nor suggests “marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal” and “marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal” as claimed in the amended claim 1 of the present invention. Lee also neither discloses nor suggests “storing information indicative of whether the selected channel is marked as a digital or analog channel” as claimed in the amended claim 1 of the present invention.

Citta teaches a dual HDTV/NTSC receiver that includes a microprocessor for controlling a tuner for synthesizing the carrier frequencies of HDTV signals and NTSC signals. The tuner initially synthesizes the carrier frequency of a desired HDTV signal which attempts to be detected in a narrow band synchronous detector. Detection of the HDTV signal produces a high lock detect signal which causes the microprocessor to enable an HDTV processing channel. If no HDTV signal is detected, the lock detect signal remains low and the microprocessor controls the tuner for synthesizing the carrier frequency of the NTSC co-channel television signal. Citta, similarly to Lee, neither discloses nor suggests “marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal” and “marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal” as claimed in the amended claim 1 of the present invention.

In regards to claim 1, the Examiner states that incorporating the RAM disclosed in Citta into Lee's system produces a system as claimed in claim 1 of the present invention. Lee discloses "The determination signal generator 160 outputs to the selector 170 a determination signal for selecting the output of the first signal processor 120, if the first detection signal is logic 'high', in step S206. If the first detection signal is also logic 'low', in step S205, the procedure returns to step S201, and then the steps following step S201 are repeated." The Examiner claims that this step in Lee is similar to the "repeating said selecting, receiving, digital channel determining, analog channel determining and storing steps until each of the plurality of channels have been selected" as claimed in claim 1 of the present invention. However, neither Citta nor Lee, as discussed above, disclose or suggest "marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal" and "marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal" as claimed in the amended claim 1 of the present invention. The present claimed invention repeats the selecting, receiving, digital channel marking, analog channel marking and storing steps during the autoprogramming mode until each of the plurality of channels have been selected. The motivation for marking the individual channels is to expedite tuning process. By marking each channel as analog or digital, the present claimed invention is able to reduce the time required for tuning a selected channel as the receiver does not have to detect whether the channel is analog or digital upon selection of the channel, as disclosed on page 8, lines 7-10 of the specification.

Additionally, there is no motivation or reason to combine the inventions of Lee with that of Citta. Lee utilizes a circuit that includes a first and second detector for detecting reference signals. Upon detecting the reference signals, the circuit generates a determination which indicates that the received signal is an analog broadcasting signal or a high definition signal. Citta synthesizes the carrier frequency of a desired HDTV signal which is to be detected in a narrow band synchronous detector. Detection of the HDTV signal produces a high lock detect signal which

causes the microprocessor to enable an HDTV processing channel. If no HDTV signal is detected, the lock detect signal remains low and the microprocessor controls the tuner for synthesizing the carrier frequency of the NTSC co-channel television signal. It is clear from the above description that Lee and Citta utilize different processes in determining whether a signal is HDTV or NTSC. Thus, the combination of the two inventions would merely produce a receiver with two different ways of detecting HDTV and NTSC signals.

Even if there is sufficient motivation or reason to combine Lee and Citta, such a combination would produce a tuner that synthesizes the carrier frequency of a desired signal and generates a determination signal in order to determine whether the signal is HDTV or NTSC, creating a redundant process for the same functionality. This combination of Lee and Citta neither discloses nor suggests “marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal” and “marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal” as claimed in the amended claim 1 of the present invention. In view of the above remarks regarding the rejection of claim 1, it is respectfully submitted that this rejection is satisfied and should be withdrawn.

As claims 2 and 3 are dependent on claim 1, it is respectfully submitted that these claims are allowable for the same reasons as discussed above with respect to claim 1. Thus, it is further respectfully submitted that this rejection has been satisfied and should be withdrawn.

In view of the above remarks and amendments to the claims it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in Lee and Citta showing the above discussed features. It is thus respectfully submitted that this rejection is satisfied and should be withdrawn.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (U.S. Patent No. 6,335,762 B1) in view of Citta (U.S. Patent No. 5,283,653), as applied in claims 1 and 3 above, and further in view of Han (U.S. Patent No. 6,559,898 B1).

Han teaches a dual HDTV/NTSC receiver for recovering one of a HDTV signal and a NTSC signal coexisting in a desired channel. The invention includes a tuning unit for converting a desired one of HDTV signal and NTSC signals into an intermediate frequency (IF) signal, a sync detector, a timing recovery unit, and a controller for determining whether a currently received television signal is either an NTSC signal or an HDTV signal. Han teaches “a timing recovery unit, coupled to receive the intermediate frequency signal output from the tuning unit, for self-recovering symbol timing of the applied HDTV signal” (col. 2, lines 1-4). Han however, even when combined with Lee and Citta, neither discloses nor suggests a method “wherein the synchronization signals comprise a Carrier Lock signal and a Segment Lock signal” as disclosed in claim 4 of the present invention. The Carrier Lock signal is generated once phase lock occurs. “After sending the Carrier Lock signal, the symbol time recovery loop matches or phase-locks the baseband data stream for recovering a data symbol stream from the baseband data stream” as disclosed on page 5, lines 4-6 of the description. Thus, the Carrier Lock signal is not synonymous with the “timing recovery unit” as described by the Examiner.

Additionally, Han, similarly to Lee and Citta, neither discloses nor suggests “marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal” and “marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal” as claimed in the amended claim 1 of the present invention. Thus it is respectfully submitted that this rejection has been satisfied and should be withdrawn.

In view of the above remarks and amendments to the claims it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in Lee, Citta and Han showing the above discussed features. It is thus respectfully submitted that this rejection is satisfied and should be withdrawn.

Rejection of Claim 5 under 35 USC § 103(a)

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (U.S. Patent No. 6,335,762 B1) in view of Citta (U.S. Patent No. 5,283,653), as applied in claims 1 and 3 above, and further in view of Citta et al. (U.S. Patent No. 6,559,898 B1).

Citta et al. (6,559,898) teach an encoder-modulator for coupling a digital baseband television signal to a VSB digital television receiver that includes filters, equalization circuitry, and forward error correction circuitry for correcting signal impairments that are below a given threshold. For terrestrial broadcasting, the data signal is randomized, subjected to Reed-Solomon type encoding for error correction, interleaved, Trellis encoded, multiplexed with segment sync and field sync, supplied with a DC pilot; subject to pre-equalization filtering; modulated and RF upconverted for transmission.

Citta et al. (6,559,898) in any combination with Lee and Citta, however, neither disclose nor suggest a method “wherein the error check signals comprise a Forward Error Correction (FEC) signal and a Reed Solomon Error Rate signal” as disclosed in claim 5 of the present invention. “The FEC module detects and corrects errors in the demodulated digital signal” as disclosed in the description of the present claimed invention. Thus, it is respectfully submitted that this rejection has been satisfied and should be withdrawn.

Additionally, Citta et al. (6,559,898), similarly to Lee and Citta (5,283,653), neither disclose nor suggest “marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal”

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and “marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal” as claimed in the amended claim 1 of the present invention.

In view of the above remarks and amendments to the claims it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in Lee, Citta (5,283,653) and Citta et al. (6,559,898) showing the above discussed features. It is thus respectfully submitted that this rejection is satisfied and should be withdrawn.

Rejection of Claims 6-7 under 35 USC § 103(a)

Claims 6-7 are rejected under 35 U.S.C. 103(a), as being unpatentable over Lee (U.S. Patent No. 6,335,762 B1) in view of Citta (U.S. Patent No. 5,283,653) as applied in claim 1 above, and further in view of Shintani et al. (U.S. Patent No. 6,137,546).

Shintani et al. teach an autoprogrammer for a television receiver capable of receiving conventional analog channels and DTV channels. Conventional channels are identified and then skip channel data for each of the channels is stored in a memory. Subsequent executions of the autoprogram function map DTV channels. Skip channel data is entered in the memory for these additional DTV channels.

Shintani et al., similarly to Lee and Citta, neither disclose nor suggest “marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal” and “marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal” as claimed in claim 1 of the present invention. Thus, as claim 6 is dependent on claim 1 and claim 7 is dependent on claim 6, it is respectfully submitted that these claims are allowable for the same reasons as discussed above with respect to claim 1. Thus, it is further respectfully submitted that this rejection has been satisfied and should be withdrawn.

In view of the above remarks and amendments to the claims it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in Lee, Citta and Shintani et al. showing the above discussed features. It is thus respectfully submitted that this rejection is satisfied and should be withdrawn.

Rejection of Claims 8-9 and 11 under 35 USC § 103(a)

Claims 8-9 and 11 are rejected under 35 U.S.C. 103(a), as being unpatentable over Lee (U.S. Patent No. 6,335,762 B1) in view of Citta (U.S. Patent No. 5,283,653), and further in view of Kim (U.S. Patent No. 6,519,298 B1).

Kim teaches a circuit for discriminating between received signals. The circuit includes a detector for detecting a peak signal based on the degree of correlation between a received signal and a reference signal and a generator for generating a discrimination signal showing that the received signal is a high definition signal if the peak signal is detected in a predetermined period; and showing that the received signal is a signal of an analog broadcasting method if the peak signal is not detected in the predetermined period.

Kim, similarly to Lee and Citta, neither discloses nor suggests “a digital signal converter, coupled to said tuner, for demodulating the IF signal into a baseband digital signal and generating synchronization and error correction signals from the baseband digital signal” as disclosed in claim 8 of the present invention. Thus, it is respectfully submitted that this rejection has been satisfied and should be withdrawn.

Additionally, Kim, similarly to Lee and Citta, neither discloses nor suggests “marking the type of channel for each of the plurality of channels and storing information about the type of channel for each of the plurality of channels into said memory unit” as claimed in the amended claim 8 of the present invention. Thus it is respectfully submitted that this rejection has been satisfied and should be withdrawn.

As claims 9 and 11 are dependent on claim 8, it is respectfully submitted that these claims are allowable for the same reasons as discussed above with respect to claims 8. Thus, it is further respectfully submitted that this rejection has been satisfied and should be withdrawn.

In view of the above remarks and amendments to the claims it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in Lee, Citta, and Kim showing the above discussed features. It is thus respectfully submitted that this rejection is satisfied and should be withdrawn.

Rejection of Claim 10 under 35 USC § 103(a)

Claim 10 is rejected under 35 U.S.C. 103(a), as being unpatentable over Lee (U.S. Patent No. 6,335,762 B1) in view of Citta (U.S. Patent No. 5,283,653), Kim (U.S. Patent No. 6,519,298 B1) and further in view of Sugiyama (U.S. Patent No. 6,313,886 B1).

Sugiyama teaches an apparatus for tuning television channels that transmit either PSIP Transport Streams or non-PSIP Transport Streams. PSIP Transport Streams contain PSIP sections that include a major channel number and minor channel numbers, whereas non-PSIP Transport Streams do not contain such PSIP sections, but both PSIP and non-PSIP Transport Streams contain PAT sections. Sugiyama teaches separate analog video and audio processing circuits that processes the demodulated analog signals received from the analog demodulator.

Additionally, Sugiyama, similarly to Lee, Citta and Kim, neither discloses nor suggests “marking the type of channel for each of the plurality of channels and storing information about the type of channel for each of the plurality of channels into said memory unit” as claimed in the amended claim 8 of the present invention. Thus it is respectfully submitted that this rejection has been satisfied and should be withdrawn.

Sugiyama, whether taken alone or in combination with Lee and Citta, neither discloses nor suggests “an analog signal processor, coupled to said analog demodulator, for generating video synchronization signals and separating the analog baseband signal into video and audio components” as claimed in claim 10 of the present invention. Thus, it is respectfully submitted that this rejection has been satisfied and should be withdrawn.

In view of the above remarks and amendments to the claims it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in Lee, Citta, Kim, and Sugiyama showing the above discussed features. It is thus respectfully submitted that this rejection is satisfied and should be withdrawn.

Rejection of Claim 12 under 35 USC § 103(a)

Claim 12 is rejected under 35 U.S.C. 103(a), as being unpatentable over Lee (U.S. Patent No. 6,335,762 B1) in view of Citta (U.S. Patent No. 5,283,653), Kim (U.S. Patent No. 6,519,298 B1) and further in view of Han (U.S. Patent No. 6,545,723 B1).

Han teaches “a timing recovery unit, coupled to receive the intermediate frequency signal output from the tuning unit, for self-recovering symbol timing of the applied HDTV signal” (col. 2, lines 1-4). Han however, neither discloses nor suggests a method “wherein the synchronization signals comprise a Carrier Lock signal and a Segment Lock signal” as disclosed in claim 4 of the present invention. The Carrier Lock signal is generated once phase lock occurs. “After sending the Carrier Lock signal, the symbol time recovery loop matches or phase-locks the baseband data stream for recovering a data symbol stream from the baseband data stream” as disclosed on page 5, lines 4-6 of the description. Thus, the Carrier Lock signal is not synonymous with the “timing recovery unit” as described by the Examiner. Thus it is respectfully submitted that this rejection has been satisfied and should be withdrawn.

Additionally, Han, similarly to Lee, Citta and Kim, neither discloses nor suggests “marking the type of channel for each of the plurality of channels and storing

information about the type of channel for each of the plurality of channels into said memory unit” as claimed in the amended claim 8 of the present invention. Thus it is respectfully submitted that this rejection has been satisfied and should be withdrawn.

In view of the above remarks and amendments to the claims it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in Lee, Citta, Kim, and Han showing the above discussed features. It is thus respectfully submitted that this rejection is satisfied and should be withdrawn.

Rejection of Claim 13 under 35 USC § 103(a)

Claim 13 is rejected under 35 U.S.C. 103(a), as being unpatentable over Lee (U.S. Patent No. 6,335,762 B1) in view of Citta (U.S. Patent No. 5,283,653), Kim (U.S. Patent No. 6,519,298 B1) and further in view of Citta et al. (U.S. Patent No. 6,559,898 B1).

Citta et al. when taken alone or in any combination with Lee, Citta and Kim, neither disclose nor suggest a method “wherein the error check signals comprise a Forward Error Correction (FEC) signal and a Reed Solomon Error Rate signal” as claimed in claim 5 of the present invention. “The FEC module detects and corrects errors in the demodulated digital signal” as disclosed in the description of the present claimed invention.

Additionally, Citta et al. (6,559,898), similarly to Lee, Citta (5,283,653) and Kim, neither disclose nor suggest “marking the type of channel for each of the plurality of channels and storing information about the type of channel for each of the plurality of channels into said memory unit” as claimed in the amended claim 8 of the present invention. Thus it is respectfully submitted that this rejection has been satisfied and should be withdrawn.

In view of the above remarks and amendments to the claims it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in Lee, Citta

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(5,283,653), Kim, and Citta et al. (6,559,898) showing the above discussed features. It is
thus respectfully submitted that this rejection is satisfied and should be withdrawn.

Rejection of Claims 14-15 under 35 USC § 103(a)

Claims 14-15 are rejected under 35 U.S.C. 103(a), as being unpatentable over Lee (U.S. Patent No. 6,335,762 B1) in view of Citta (U.S. Patent No. 5,283,653), and further in view of Sugiyama (U.S. Patent No. 6,313,886 B1).

Claim 14, similarly to claim 1, has been amended to recite “marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal; marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal”. Support for this can be found on page 8, line 32 to page 9, line 5.

Similar to the above argument for claim 1, none of Lee, Citta and Sugiyama disclose or suggest “marking the selected channel as a digital signal if the frequency of the selected channel is similar to a nominal frequency for a digital signal” and “marking the selected channel as an analog signal if the frequency of the selected channel is similar to a nominal frequency for an analog signal” as claimed in the amended claim 14 of the present invention. The present claimed invention repeats the selecting, receiving, digital channel marking, analog channel marking and storing steps during the autoprogramming mode until each of the plurality of channels have been selected. The motivation for marking the individual channels is to expedite tuning process. By marking each channel as analog or digital, the present claimed invention is able to reduce the time required for tuning a selected channel as the receiver does not have to detect whether the channel is analog or digital upon selection of the channel. In view of the above remarks regarding the rejection of claim 14, it is respectfully submitted that this rejection is satisfied and should be withdrawn.

As claim 15 is dependent on claim 14, it is respectfully submitted that this claim is allowable for the same reasons as discussed above with respect to claim 14. Thus, it is further respectfully submitted that this rejection has been satisfied and should be withdrawn.

In view of the above remarks and amendments to the claims it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in Lee, Citta, and Sugiyama showing the above discussed features. It is thus respectfully submitted that this rejection is satisfied and should be withdrawn.

Rejection of Claim 16 under 35 USC § 103(a)

Claim 16 is rejected under 35 U.S.C. 103(a), as being unpatentable over Lee (U.S. Patent No. 6,335,762 B1) in view of Citta (U.S. Patent No. 5,283,653), Sugiyama (U.S. Patent No. 6,313,886 B1) and further in view of Shintani et al. (U.S. Patent No. 6,137,546).

As claim 16 is dependent on claim 14, it is respectfully submitted that this claims are allowable for the same reasons as discussed above with respect to claim 14. Thus, it is further respectfully submitted that this rejection has been satisfied and should be withdrawn.

In view of the above remarks and amendments to the claims it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in Lee, Citta, Sugiyama, and Shintani et al. showing the above discussed features. It is thus respectfully submitted that this rejection is satisfied and should be withdrawn.

Having fully addressed the Examiner's rejections, it is believed that, in view of the preceding amendments and remarks, this application stands in condition for allowance. Accordingly then, reconsideration and allowance are respectfully solicited. If, however, the Examiner is of the opinion that such action cannot be taken, the

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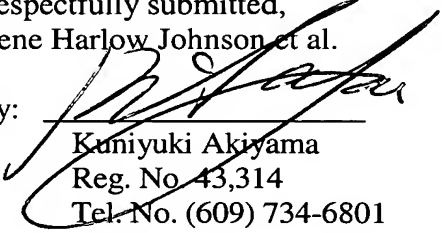
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Examiner is invited to contact the applicant's attorney at the phone number below, so that a mutually convenient date and time for a telephonic interview may be scheduled.

No additional fee, other than the fee for extension of time is believed due in regard to the present amendment; however, if a fee is due, please charge the additional fee to Deposit Account 07-0832.

Respectfully submitted,
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